CLAIMS:

1. A corrosion inhibitor, comprising:

an oxo-anion having the general formula $(H_NA_NO_N)_N(A_NO_N)_N(H_2O)_N$;

wherein H is hydrogen, O is oxygen, N is an integer equal to 1 or higher, and A is selected from the group consisting of molybdenum, phosphorous, tungsten, silicon, and combination thereof;

wherein the oxo-anion is capable of substantially inhibiting the propagation of pit corrosion on the surface of a coated metallic substrate.

2. The invention according to claim 1, further comprising a cation having the general formula D_N;

wherein D is a metal, and N is an integer equal to 1 or higher;

wherein the cation is capable of substantially inhibiting the propagation of pit corrosion on the surface of a coated metallic substrate.

3. The invention according to claim 2, wherein D is a transition metal.

4. The invention according to claim 2, wherein D is an alkaline earth metal.

5. The invention according to claim 2, wherein D is a rare earth metal.

6. The invention according to claim 2, wherein D is an element selected from the lanthanide series of the periodic table of elements.

7. The invention according to claim 2, wherein D is selected from the group consisting of barium, strontium, aluminum, zinc, lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium, yttrium, scandium, and combinations thereof.

8. The invention according to claim 2, wherein the oxo-anion and the cation are combined to form a salt;

wherein the salt is capable of substantially inhibiting the propagation of pit corrosion on the surface of a coated metallic substrate.

9. The invention according to claim 2, wherein the oxo-anion and the cation are combined to form a supramolecule;

wherein the supramolecule is capable of substantially inhibiting the propagation of pit corrosion on the surface of a coated metallic substrate.

10. The invention according to claim 1, wherein the metallic substrate is comprised of a material selected from the group consisting of aluminum, aluminum alloys, and combinations thereof.

11. The invention according to claim 1, wherein the coating of the metallic substrate is comprised of a material selected from the group consisting of oxides, pigments, and combinations thereof.

12. A corrosion inhibitor, comprising:

a salt having the general formula $(D_N)(((H_NA_NO_N)_N(A_NO_N)_N(H_2O)_N)_N)$;

wherein D is a metal cation, H is hydrogen, O is oxygen, N is an integer equal to 1 or higher, and A is selected from the group consisting of molybdenum, phosphorous, tungsten, silicon, and combination thereof;

wherein the salt is capable of substantially inhibiting the propagation of pit corrosion on the surface of a coated metallic substrate.

13. The invention according to claim 12, wherein D is a transition metal.

14. The invention according to claim 12, wherein D is an alkaline earth metal.

15. The invention according to claim 12, wherein D is a rare earth metal.

16. The invention according to claim 12, wherein D is an element selected from the lanthanide series of the periodic table of elements.

17. The invention according to claim 12, wherein D is selected from the group consisting of barium, strontium, aluminum, zinc, lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium, yttrium, scandium, and combinations thereof.

18. The invention according to claim 12, wherein the salt is a supramolecule.

19. The invention according to claim 12, wherein the metallic substrate is comprised of a material selected from the group consisting of aluminum, aluminum alloys, and combinations thereof.

20. The invention according to claim 12, wherein the coating of the metallic substrate is comprised of a material selected from the group consisting of oxides, pigments, and combinations thereof.

21. A method for substantially inhibiting the propagation of pit corrosion on the surface of a coated metallic substrate, comprising:

providing an oxo-anion having the general formula $(H_NA_NO_N)_N(A_NO_N)_N(H_2O)_N$;

wherein H is hydrogen, O is oxygen, N is an integer equal to 1 or higher, and A is selected from the group consisting of molybdenum, phosphorous, tungsten, silicon, and combination thereof; and

applying a sufficient amount of the oxo-anion to the surface of the coated metallic substrate.

22. The invention according to claim 21, further comprising providing a cation having the general formula D_N;

wherein D is a metal, and N is an integer equal to 1 or higher;

wherein the cation is capable of substantially inhibiting the propagation of pit corrosion on the surface of a coated metallic substrate.

23. The invention according to claim 22, wherein D is selected from the group consisting of barium, strontium, aluminum, zinc, lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium, yttrium, scandium, and combinations thereof.

24. The invention according to claim 21, wherein the metallic substrate is comprised of a material selected from the group consisting of aluminum, aluminum alloys, and combinations thereof, and the coating of the metallic substrate is comprised of a material selected from the group consisting of oxides, pigments, and combinations thereof.